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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,119	06/03/1999	PHILIP P. CARVEY	AVI99-02	2433

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EXAMINER	
SINGH, DALZID E	

ART UNIT	PAPER NUMBER
2633	17

DATE MAILED: 06/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/325,119	CARVEY ET AL.	
	Examiner	Art Unit	
	Dalzid Singh	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11-20 and 23-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11-20,23-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1:121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-8, 11-20 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shively (US Patent No. 5,978,370) in view of Lahat et al (US Patent No. 6,417,944).

Regarding claims 1, 13 and 25, Shively disclose switching system, shown in Fig. 1 comprising:

a plurality of inputs and output (as shown in Fig. 6, the switch (61) comprises plurality of input port (for example, arrows shown going to the switch) and output port (arrows shown going out of the switch);

switch that operate with a schedule not directly determined by the input stream (see col. 9, lines 9-46 and col. 10, lines 26-57, Shively teaches that the data cell is buffered and rearranged by TSI (time slot interchange), using scheduling algorithm, therefore the switch operate with a schedule not directly determined by the input stream); and,

a plurality of reordering units that rearrange the order of data units within data streams to correspond to the schedule of the switch (as shown in Fig. 6, TSI connected to the switch can be considered as ordering units; see col. 9, lines 9-46 and col. 10,

lines 26-57, Shively teaches that the stored data cell within TSI are ordered using scheduling algorithm).

Although Shively teaches the use of switch, however, Shively does not teach the use of optical switch. Lahat et al is cited to show the use of optical switch (see Fig.1). Since the use of optical switch is well known, as evidenced by Lahat et al, therefore it would have been obvious to an artisan of ordinary skill in the art to provide the optical switch as taught by Lahat et al to the switching system of Shively. One of ordinary skill in the art would have been motivated to do this, since optical switch allows high bandwidth transmission and increase data transmission rate.

Regarding claims 2, 5, 14 and 17, the switch of Shively as disclosed above performs switching function wherein a plurality of inputs is connected to a plurality of outputs. It would have been obvious to call the switch of Shively as a crossbar or multi-stage interconnection since these switches have the same functionality, which is to transfer a plurality of data signal from various points (sources) of the input to various points (destination) of the output in order to correctly route data signals from source to destination.

Regarding claims 3, 4, 15 and 16, as cited in col. 9, lines 38-41, Shively teaches the use of input buffer and output buffer (buffers are within the TSI unit which is connected to input and output of the switch), which are controlled by scheduling algorithm to avoid collision of data signal (see col. 9, lines 9-46 and col. 10, lines 26-57).

Regarding claims 6 and 18, Shively teaches the use of time-slot interchanger (see col. 9, lines 9-30) to reorder data signals.

Regarding claims 7 and 19, as discussed above, the data signal is buffered and arranged, therefore it would have been obvious to provide the first input as the first output (FIFO).

Regarding claims 8 and 20, as cited in col. 9, lines 38-41, Shively teaches a dual port memory (two banks of memory).

Regarding claims 11 and 23, since data cells are buffered and transmitted using a scheduling algorithm, there must be a controller to control operation of the system.

Regarding claims 12 and 24, as discussed above, Shively teaches buffer modules, and there must be a controller which set up connection to schedule transmission of data cells to the switch (see col. 9, lines 9-46 and col. 10, lines 26-57).

Response to Arguments

3. Applicant's arguments filed 23 March 2004 have been fully considered but they are not persuasive.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the first reference (Shively) teaches switching system in which electrical switch is disclose. The

second reference (Lahat et al) teaches switching system in which optical switch is disclose. Since demand for larger bandwidth and faster transmission rate has increased, therefore, one of ordinary skill in the art would have been motivated to incorporate optical switch of Lahat et al to the switching system of Shively in order to provide unlimited bandwidth and provide greater transmission rates.

Applicant seems to indicate that the switch of Shively can not be modified to incorporate the optical switch of Lahat et al by explaining that "...that the slow configuring frequency-tuned optical switch of Lahat et al could not be used in the system of Shively since it would require the time slots of the T-S-T switch to be very long and hence would require prohibitively large memories in the TSI". It appears that this is applicant's opinion or conclusion. Arguments or conclusion of attorney cannot take the place of evidence. See *In re Cole*, 51 CCPA 919,326 F.2d 769, 140 USPQ 230 (1964); *In re Schulze*, 52 CCPA 1422, 346 F.2d 600, 145 USPQ 716 (1965); *Meitzner v Mindick*, 549 F.2d 775, 193 USPQ 17 (CCPA 1977).

It is extremely well known in the art to provide optical switch to interface with electrical system. The transition from electrical domain to optical domain or vice versa is accomplished through the use of optical to electrical converters or electrical to optical converters. For example, in order to interface with an optical switch, electrical signal has to be converted to optical signal which is done through the use of electrical to optical converter. Hunter (US Patent No. 5,390,178) and Faulds (US Patent No. 5,784,372) are cited to show such well known concept (see col. 2, lines 49-56 of Hunter and col. 1, lines 17-33 of Faulds). Therefore, it would have been obvious to an artisan

of ordinary skill in the art to incorporate optical switch in place of electrical switch. One of ordinary skill in the art would have been motivated to do this in order to provide greater traffic capacity and increase transmission speed.

Applicant argues that, "...to operate the Shively space switch, permutations must be switched on every time slot." The reference, Shively, does not indicate that permutation must be switched on every time slot. In col. 9, lines 14-17, Shively teaches that input and output of the switch may be buffered and permuted using plurality of time slot interchange modules (TSI modules). Shively does indicate that permutations must be switched on every time slot to operate the switch. Therefore, the use of optical switch of Lahat et al does not require the time slot of the switch to be very long and hence would not require large memories in the TSI. Applicant further argues that "...TSI in the Avici system is not being used to switch input in time, but rather used to batch packets going to the same output together..." This argument is considered with respect to the reference Shively and not "Avici". There is no mention of such limitation in the claim. The independent claims, 1, 13 and 25, recite, "...rearrange the order of data units..." The TSI of Shively clearly suggests rearranging the order of data units (see col. 9, lines 15-17, Shively teaches that the inputs and outputs may be buffered and permuted using a plurality of TSI modules).

Applicant argues that neither Shively or Lahat et al disclose schedule adaptation of any kind in which the switch is operated using a schedule that is not directly determined from the input stream but which takes into account unbalance in traffic. However, in col. 9, lines 11-14, col. 10, lines 43-48, and col. 11, lines 39-51, Shively

teaches that the switch operates with a schedule (i.e., routing table), which is dynamically variable to different traffic. Since schedule of the switch changes with traffic flow, therefore the switch operates using a schedule that is not directly determined from the input stream but which takes into account unbalance in traffic.

Furthermore, applicant argues that "Unlike the packet switch of the present invention, Shively and Lahat et al disclose circuit switches" In claim 14 of the present invention, applicant indicates that the switch is a crossbar. Crossbar switch is a circuit switch. Therefore, the switch as claimed in the present application is a circuit switch, which is disclosed by Shively. Moreover, in response to arguments regarding changing or adjusting of schedules on pages 3 and 4 of the response, Shively, as discussed above, teaches changing schedules (for example, in col. 11, lines 39-51, Shively discloses the schedule or routing table is dynamically variable).

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is 703-306-5619. The examiner can normally be reached on Mon-Fri 8am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703-305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
May 25, 2004

M.R. SEDIGHIAN
Primary Examiner
Art Unit: 2633